

Notice of Allowability

Application No.

10/673,040

Examiner

Neveen Abel-Jalil

Applicant(s)

THESS ET AL.

Art Unit

2165

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to December 14, 2006.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

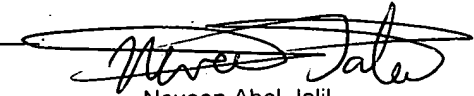
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application..
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |


Neveen Abel-Jalil
AU 2165

DETAILED ACTION

Remarks

1. The After Final Amendment filed on December 4, 2006 has been received and entered. Claims 1-15 are pending.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Christopher J. Chan on December 18, 2006 (Attorney of Record).

Amendments to the Claims:

3. The application has been amended as follows:

Replace claim 1 with the following:

1. (Currently Amended): A computer-implemented method of determining a set of large sequences from an electronic data base comprising a set $D = \{d_1, \dots, d_n\}$ of transactions d_i ($1 \leq i \leq n$) in a computer system with an implemented query module, each of the large sequences on the set D of transactions d_i having a support value greater than or equal to a given support value S , each

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of the transactions d_i of the set D being a sequence of items of a record $E = \{e_1, \dots, e_m\}$ of items e_j ($1 \leq j \leq m$) and the method comprising the following steps:

- a) determining, via a computer, a set L_1 of large sequences from the set D of transactions, the large sequences of set L_1 each comprising exactly one item of the record E , and an assigned support value S_{L_1} on the sequence D of transactions each being greater than or equal to the given support value S ;
- b) determining, via a computer, a set L_2 of large sequences from the set D of transactions, the large sequences of set L_2 each comprising exactly two items of the record E in a respective order R_{L_2} , and an assigned support value S_{L_2} on the set D of transactions each being greater than or equal to the given support value S , and nothing but sequences comprising one of the large sequences of set L_1 , as a partial sequence, being taken into account in determining set L_2 ;
- c) determining, via a computer, a set L_k ($k > 2$) of large sequences from the set D of transactions, the large sequences of set L_k each comprising exactly k items of record E in a respective order R_{L_k} , and an assigned support value S_{L_k} on the sequence D of transactions each being greater than or equal to the given support value S , and nothing but sequences comprising two of the large sequences of set L_{k-1} , as partly overlapping partial sequences, with the respective order $R_{L_{k-1}}$, being taken into account in determining set L_k ; and
- d) repeating step c) for $k = k+1$ and terminating the repetition of step c) when a predefined termination condition is fulfilled; and
- e) if when the repetition of step c) is terminated, outputting via a computer an indication of

whether any sequence results exist.

Replace claim 6 with the following:

6. (Currently Amended): A computer program product stored and implemented on a computer to determine a set of large sequences from an electronic data base comprising a set $D = \{d_1, \dots, d_n\}$ of transactions d_i ($1 \leq i \leq n$) in a computer system with an implemented query module, each of the large sequences on the set D of transactions d_i having a support value greater than or equal to a given support value S , each of the transactions d_i of the set D being a sequence of items of a record $E = \{e_1, \dots, e_m\}$ of items e_j ($1 \leq j \leq m$) and the product comprising the following means:

- a) means recorded on an electronic storage medium for determining a set L_1 of large sequences from the set D of transactions, the large sequences of set L_1 each comprising exactly one item of the record E , and an assigned support value S_{L_1} on the sequence D of transactions each being greater than or equal to the given support value S ;
- b) means recorded on the electronic storage medium for determining a set L_2 of large sequences from the set D of transactions, the large sequences of set L_2 each comprising exactly two items of the record E in a respective order R_{L_2} , and an assigned support value S_{L_2} on the set D of transactions each being greater than or equal to the given support value S , and nothing but sequences comprising one of the large sequences of set L_1 , as a partial sequence, being taken into account in determining set L_2 ;
- c) means recorded on the electronic storage medium for determining a set L_k ($k > 2$) of large sequences from the set D of transactions, the large sequences of set L_k each comprising exactly k items of record E in a respective order R_{L_k} , and an assigned support value S_{L_k}

- on the sequence D of transactions each being greater than or equal to the given support value S, and nothing but sequences comprising two of the large sequences of set L_{k-1} , as partly overlapping partial sequences, with the respective order $R_{L_{k-1}}$, being taken into account in determining set L_k ;
- d) means recorded on the electronic storage medium for repeating step c) for $k = k+1$ and terminating the repetition of step c) when a predefined termination condition is fulfilled; and
- e) means recorded on the electronic storage medium for outputting an indication of whether any sequence results exist, if when the repetition of step c) is terminated.

Replace claim 7 with the following:

7. (Currently Amended): An integrated sequential analysis system, comprising:

an electronic data base comprising a set $D = \{d_1, \dots, d_n\}$ of transactions d_i ($1 \leq i \leq n$), each of the large sequences on the set D of transactions d_i having a support value greater than or equal to a given support value S, each of the transactions d_i of the set D being a sequence of items of a record $E = \{e_1, \dots, e_m\}$ of items e_j ($1 \leq j \leq m$);

a query module comprising a query means coupled to the data base and a processing means for detecting query parameters and generating queries to the query means;

means for determining a set L_1 of large sequences from the set D of transactions, the large sequences of set L_1 each comprising exactly one item of the record E, and an assigned support value S_{L_1} on the sequence D of transactions each being greater than or equal to the given support value S;

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means for determining a set L_2 of large sequences from the set D of transactions, the large sequences of set L_2 each comprising exactly two items of the record E in a respective order R_{L_2} , and an assigned support value S_{L_2} on the set D of transactions each being greater than or equal to the given support value S , and nothing but sequences comprising one of the large sequences of set L_1 , as a partial sequence, being taken into account in determining set L_2 ;

means for determining a set L_k ($k > 2$) of large sequences from the set D of transactions, the large sequences of set L_k each comprising exactly k items of record E in a respective order R_{L_k} , and an assigned support value S_{L_k} on the sequence D of transactions each being greater than or equal to the given support value S , and nothing but sequences comprising two of the large sequences of set L_{k-1} , as partly overlapping partial sequences, with the respective order $R_{L_{k-1}}$, being taken into account in determining set L_k ;

means for repeating step c) for $k = k+1$ and terminating the repetition of step c) when a predefined termination condition is fulfilled; and

means for outputting an indication of whether any sequence results exist, and outputting the indication when if the repetition of step c) is terminated.

Replace claim 12 with the following:

12. (Currently Amended): The ~~method~~ computer program product as claimed in claim 6, where the predefined termination condition comprises substantially all large sequences of maximum length being found.

Replace claim 13 with the following:

13. (Currently Amended): The ~~method~~ computer program product as claimed in claim 6, where the predefined termination condition comprises reaching a maximum length of the large sequences.

Replace claim 14 with the following:

14. (Currently Amended): The ~~method~~ integrated sequential analysis system as claimed in claim 7, where the predefined termination condition comprises substantially all large sequences of maximum length being found.

Replace claim 15 with the following:

15. (Currently Amended): The ~~method~~ integrated sequential analysis system as claimed in claim 7, where the predefined termination condition comprises reaching a maximum length of the large sequences.

Allowance

4. Claims 1-15 are allowed over the prior art made of record.
5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Neveen Abel-Jalil whose telephone number is 571-272-4074. The examiner can normally be reached on 8:30AM-5:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A. Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Neeven Abel-Jalil
December 18, 2006